

## REMARKS

### Claim rejections under 35 U.S.C. § 103

Before addressing the specific obviousness rejection, Applicant wishes to clarify what is required to support an obviousness rejection. The Office Action must establish a prima facie case of obviousness to meet the burden of 103.

The PTO has the burden under section 103 to establish a prima facie case of obviousness. It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references.

In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988) (citations omitted).

In establishing a prima facie case of obviousness, the PTO "cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." Id. at 1600. Rather, "[t]he test is whether the claimed invention as a whole, in light of all the teachings of the references in their entireties, would have been obvious to one of ordinary skill in the art at the time the invention was made."

Connell v. Sears, Roebuck & Co., 220 U.S.P.Q. 193, 199 (Fed. Cir. 1983).

Applicant submits that the Office Action does not make a prima facie case of obviousness in that it does not show either (a) some objective teaching in the prior art that suggests combining the references, or (b) knowledge generally available to one of ordinary skill in the art which would lead that individual to combine the relevant teachings of the references to achieve the invention claimed, or c) that the combined inventions would result in the claimed invention. See In re Fine, 5 U.S.P.Q.2d 1596,

1598 (Fed. Cir. 1988).

With these requirements in mind, the specific rejection is addressed. Claim 1 is rejected as being unpatentable over Nelson et al in view of Litwinski and Packer et al. It is asserted that Nelson teaches the tool but lacks the support mandrel and the diffusion preventing material on the anvil. It is asserted that Litwinski et al. teaches the support mandrel, and that Packer teaches the diffusion preventing material on the anvil.

Applicant respectfully traverses the rejection of claim 1 in light of the cited prior art. With respect to claim 1, the present invention claims a "friction stir welding system that is capable of functionally friction stir welding high melting temperature ferrous and non-ferrous alloys, and superalloys ..." In contrast, Litwinski does not teach, nor even suggest, that it is teaching a friction stir welding system that is capable of anything but friction stir welding materials that are traditionally friction stir welded. Friction stir welding of the materials described above was only recently made possible as taught in the seminal patent "Friction stir welding of metal matrix composites, ferrous alloys, non-ferrous alloys, and superalloys using a superabrasive tool" (US Patent No. 6,779,704), and which is currently owned by Applicant. As known to those skilled in the art of friction stir welding of "hard" or "high melting temperature" materials, the tools and milling machines that perform friction stir welding on "soft" materials such as aluminum cannot friction stir weld hard materials for more than a few inches before failing. Litwinski is not addressing the subject matter of a system that is capable of friction stir welding hard materials as it was filed before the filing date of the seminal friction stir welding patent cited above.

In a further explanation, it is noted that hard materials can be considered to be those materials having melting temperatures higher than bronze and aluminum. This class of materials includes, but is not limited to, metal matrix composites, ferrous alloys such as steel and stainless steel, non-ferrous materials, superalloys, titanium, cobalt alloys typically used for hard-facing, and air hardened or high speed steels. Standard friction stir welding is performed on lower melting temperature materials that are not included within the definition of the higher melting temperatures described above.

In light of the statements above, Applicant respectfully requests issuance of claims 1-46. If any impediment to the allowance of these claims remains after entry of this Amendment, and such impediment could be alleviated during a telephone interview, the examiner is invited to call David W. O'Bryant at (801) 478-0071 so that such matters may be resolved as expeditiously as possible.

The Commissioner is hereby authorized to charge any additional fee or to credit any overpayment in connection with this Amendment to Deposit Account No. 50-0881.

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Respectfully submitted,



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